

WHAT IS CLAIMED IS:

1. A method of making a composite metal material comprising the steps of:
  - (a) providing two outer layers of copper pre-bonded to a pure aluminum such as 1100 series aluminum or to an aluminum alloy such as 3003 aluminum alloy;
  - (b) providing a core layer of alclad aluminum, comprising a composite having a core of aluminum alloy pre-bonded to outer layers of substantially pure 1100 series aluminum;
  - (c) placing the outer layers of copper pre-bonded material on either side of the alclad core layer such that the aluminum layer carried by each copper layer is facing the alclad core layer to form a stacked pack;
  - (d) heating the stacked pack assembled in step (c) to a suitable rolling temperature, such as about 650°F; and
  - (e) hot rolling the stacked pack in a rolling mill at incremental reductions to roll bond the layers to a desired finished thickness.
2. The composite metal material made according to the method of claim 1.
3. A method of making a cellular telephone transmission tower antenna from a composite metal material comprising the steps of:
  - (a) providing two outer layers of copper pre-bonded to a pure aluminum such as 1100 series aluminum or to an aluminum alloy such as 3003 aluminum alloy;
  - (b) providing a core layer of alclad aluminum, comprising a composite having a core of aluminum alloy pre-bonded to outer layers of substantially pure 1100 series aluminum;
  - (c) placing the outer layers of copper pre-bonded material on either side of the alclad core layer such that the aluminum layer carried by each copper layer is facing the alclad core layer to form a stacked pack;
  - (d) heating the stacked pack assembled in step (c) to a suitable rolling temperature, such as about 650°F;
  - (e) hot rolling the stacked pack in a rolling mill at incremental reductions to roll bond the layers to a desired finished thickness to provide a composite metal sheet; and

(f) forming the composite metal sheet of step (e) into a desired antenna configuration.

4. A composite metal material comprising a core layer of aluminum alloy having layers of pure aluminum roll bonded on either side of said core layer with layers of pure aluminum or aluminum alloy roll bonded to said layers of pure aluminum and layers of copper defining the outer skin of said composite metal material roll bonded to said layers of pure aluminum or aluminum alloy.

5. A cellular telephone transmission tower antenna made from the composite metal material of claim 4.

6. A cellular telephone transmission tower antenna made from a composite metal material comprising a core layer of aluminum alloy having layers of pure aluminum roll bonded on either side of said core layer with layers of pure aluminum or aluminum alloy roll bonded to said layers of pure aluminum and layers of copper defining the outer skin of said composite metal material roll bonded to said layers of pure aluminum or aluminum alloy.